

PJM RTEP – 2017 RTEP Proposal Window #1

**Project Proposal Report
Proposal J: Harmony – Clay New 230 kV Line
by**

**Exelon Corporation, on behalf of its
subsidiaries Delmarva Power and Light
Company and PECO Energy Company**



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A. Executive Summary

Exelon Corporation (Exelon), on behalf of its affiliates Delmarva Power & Light Company (Delmarva) and PECO Energy Company (PECO), is submitting this project proposal in response to PJM RTEP – 2017 RTEP Proposal Window #1, issued by PJM on July 11, 2017.

Exelon and its public utility affiliates seek and anticipate being designated to build, own, operate and maintain all referenced facilities and associated enhancements. This proposal may be considered as a whole or in portions as PJM deems appropriate.

This report details the proposed “Harmony – Clay New 230 kV Line”, which is jointly being submitted by Delmarva and PECO. This proposal mitigates the 2022 summer generation deliverability violations identified by PJM as flowgate numbers GD-S798 (Claymont – Linwood 230 kV circuit) and GD-S815 (Edge Moor – Claymont 230 kV circuit), driven by contingency “PECO_P4_LINWO225/* \$ DELCO \$ LINWO225 \$ STBK.” Additionally, this proposal mitigates the 2022 summer generation deliverability violations identified by PJM as flowgate numbers GD-S591 (Du Pont Edge Moor – Silverside 69 kV circuit) and GD-SNew 6 (Darley – Naamans 69 kV circuit), driven by contingency “DPL_P7_1_DBL_5NC”. There are no new violations caused by the proposed project.

This project consists of constructing a new 11 mile 230kV line between the Delmarva’s Harmony 230 kV substation and PECO’s Clay 230 kV substation, as well as substation terminal installations at both the Harmony and Clay substations.

This project spans between the DPL area 235 and PECO area 230. Each Exelon Transmission Owner (TO) would construct, own, operate, and maintain their respective portions of the proposed transmission line that will be constructed within their existing territories. Exelon intends to secure new rights-of-way for this proposed project.

The project has an estimated cost of \$37.7 million (\$43.1 million In-Service Year) and an estimated In Service Date of June 1, 2022.

B. Company Evaluation Information

The Exelon companies currently own approximately 11,770 miles of transmission in PJM and have planned, constructed, maintained, and operated transmission from the early 1900s. Exelon has extensive experience constructing, operating, and maintaining transmission assets in adherence to standardized construction, maintenance and operating practices. Exelon and its public utility affiliates have executed the Consolidated Transmission Owners' Agreement and each of the Exelon utility companies are NERC registered Transmission Owners with federally mandated reliability obligations.

As discussed in the prequalification documents and highlighted below, Exelon is uniquely qualified in the engineering and design, development, construction, operation, and maintenance of transmission facilities. Exelon has unique knowledge of the transmission systems in the area in question, extensive familiarity with the communities served by its public utilities, experience in building, maintaining, and siting transmission facilities in these communities, and access to capital and resources necessary to fund the construction and maintenance of new and existing transmission facilities.

Each Exelon Utility has an internal Real Estate Department dedicated to identifying, procuring, and managing company real property assets, to include fee-owned properties, transmission and distribution rights-of-way, and other miscellaneous excess properties. The Real Estate Department coordinates closely with Exelon's Transmission Planning organization and with other functional groups within Exelon, such as those dedicated to Engineering, Environmental, Governmental Affairs, and any needed external firms in order to verify existing rights-of-way or acquire new rights-of-way and real property interests necessary to advance pending projects, as well as to sustain, modify, and improve existing facilities. Additional details and specific examples of Exelon's capability with respect to the acquisition of rights of way can be found in Exelon's pre-qualification documentation.

Exelon has internal and external contracting capability to support restoration efforts, including during extreme events. For example, during Superstorm Sandy, Exelon was able to leverage its geographically diverse workforce to assist its sister utilities in emergency restoration. With its employees, contractors, and suppliers responsive on a 24-7-365 day a year basis, Exelon is prepared to address any and all potential emergencies and equipment failures on the high voltage transmission system. Incident drills are held on a routine basis. Planning for potential large scale storms and emergencies begins as soon as the weather forecast indicates the potential for an incident. Finally, Exelon maintains a robust Incident Management Plan, as part of which employees are expected to fill second roles during system emergencies with the goal of restoring the electric system as soon as possible.

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C. Proposed Project Constructability Information

This project consists of a new line being constructed between Delmarva's Harmony 230 kV substation and PECO's Clay 230 kV substation, as well as substation terminal installations at both Edge Moor and Chichester substations. The project has an estimated cost of \$37.7 million (\$43.1 million In-Service Year) and will resolve posted summer generation deliverability overloads on the Claymont (bus 231000) to Linwood (bus 213750) 230kV line (GD-S798) and the Edge Moor (bus 231001) to Claymont (bus 231000) 230kV line (GD-S815). The project proposed is a solution to a cross-border issue and the proposed solution crosses from Delmarva area 235 into PECO area 230. Exelon and its public utility affiliates seek and anticipate being designated to build, own, operate, and maintain all listed facilities and associated enhancements.

The estimated In Service Date of the project is May 31, 2022. Delmarva and PECO will evaluate options to expedite construction to meet an earlier service date, if requested to do so by PJM.

A map of the proposed route as well as a description of the proposed line and substation components are contained in Appendix A.

Exelon will leverage dedicated internal and external support for real estate and permitting needs to procure needed additional right-of-way and support permitting and public approval. Varying iterations of property management practices are used to best preserve corridor integrity and maximize complimentary uses, to include; leasing fee simple interests, licensing easement interests, and managing encroachments to ensure compliance with all applicable standards, safety codes, and environmental and governmental regulations. New rights-of-way will need to be secured in order for this proposal to be constructed.

Exelon has reviewed required transmission and generation outages and congestion will be minimized using a variety of methods including opportune scheduling.

D. Analytical Assessment

A single line diagram of the proposed project is located in Appendix B. The analytical details of the proposed project have been included in a PSS/E .idv file submitted with this proposal.

Delmarva and PECO performed an analysis of the summer 2022 generation deliverability violations identified as flowgate numbers GD-S798 (Claymont – Linwood 230 kV circuit) and GD-S815 (Edge Moor – Claymont 230 kV circuit), driven by contingency “PECO_P4_LINWO225/* \$ DELCO \$ LINWO225 \$ STBK.” The analysis included simulations of power system conditions using Siemens PSS/E and TARA from PowerGem in conjunction with the PJM supplied input data. An initial assessment was performed to replicate the identified system conditions and fully understand the violations. Many alternative solutions were developed based on anticipated performance in alleviating the violations. Each potential solution was tested for actual performance using simulations. The NERC criteria as well as local transmission owner criteria were also applied to each of the alternatives to ensure that new problems would not be introduced by the potential solution.

Based on the analysis performed, Delmarva and PECO are submitting this proposal for a project to construct a new 230 kV line from Harmony substation to Clay substation. This project would solve the identified violations on flowgates GD-S798 and GD-S815. Additionally, the project would solve the identified violations on flowgates GD-S591 and GD-SNew 6. There were no other problems identified as being introduced to the system with the proposed project in-service. The project would add significant capacity on the 230 kV lines between Edge Moor and Chichester.

E. Cost

The estimated capital cost of the Project is listed in the summary above. The provided project costs include all direct and indirect costs related to the Project. The projects costs do not include AFUDC or estimates for contingencies. The In-Service Years costs provided at PJM's request are representative and based on a default inflation rate of 2.7%, and an assumed typical project cash flow. Upon PJM's request, Exelon can refine these estimates using detailed annual cash flow and equipment specific costs.

A detailed project cost estimate is contained in Appendix C.

Exelon has developed a robust cost containment strategy for all of its projects and intends on applying the strategy to this Project. The components of this strategy leverage extensive design, construction and permitting experience in the regulatory jurisdictions governing these facilities.

A full proposed Cost Containment Strategy is submitted in Appendix D.

F. Project Schedule

The estimated In-Service-Date is listed in the summary above, and assumes a timely approval and permitting process.

A detailed project schedule is included in Appendix E.

G. Operations/ Maintenance

The Exelon Companies have fully staffed and industry leading internal Transmission Engineering, Substation Engineering, Project Management, Transmission Planning, Transmission Operations, Transmission and Substation Maintenance, Overhead and Underground Line Operations and Maintenance, and Real Estate departments to provide all of the necessary design, construction, maintenance, and planning to competently maintain and operate the transmission system. The Exelon Companies are supported by the necessary consultants and contractors to augment the internal workforce that supports all Exelon Companies, to successfully manage and complete all capital projects, maintenance tasks, and system restoration activities necessary.

A detailed maintenance cost estimate is contained in Appendix C.

APPENDIXES A – E HAVE BEEN REDACTED TO PROTECT PROPRIETARY AND CEII INFORMATION